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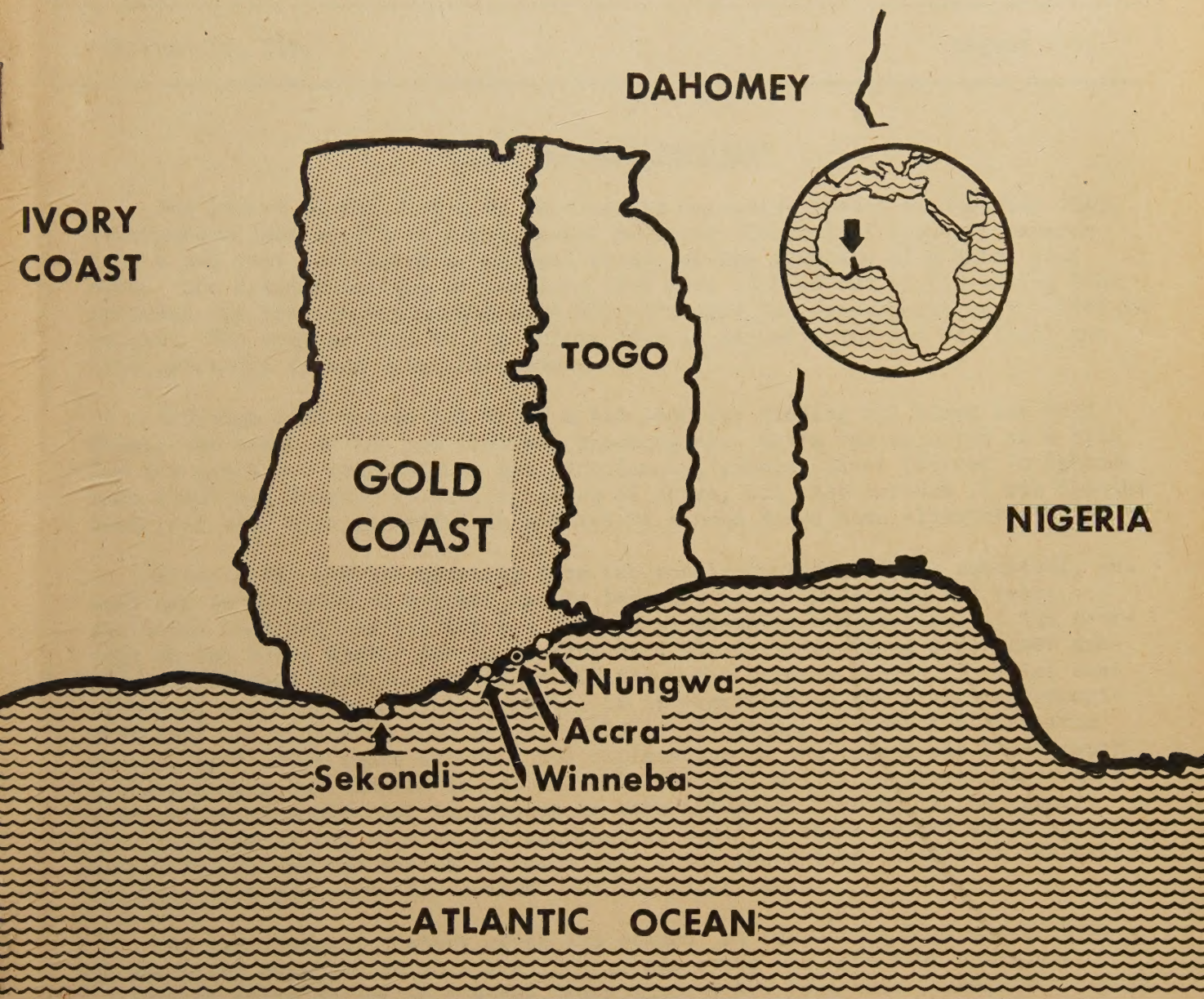

FISHERY LEAFLET 251
FISH AND WILDLIFE SERVICE
UNITED STATES DEPARTMENT OF THE INTERIOR

United States Department of the Interior, J. A. Krug, Secretary
Fish and Wildlife Service, Albert M. Day, Director

Fishery Leaflet 251

Chicago 54, Ill. August 1947

GOLD COAST SEA FISHERIES*

The report of the Fisheries Development Committee issued in November 1943, recommended that £6,000 be appropriated to cover the cost of fishery research over a two year period and to provide funds for the purchase of a motor surf boat. The recommendations of the Committee were carried out, £7,510 having been included for the purpose in the £644,970 allocated for development in the 1945-46 budget. The boat arrived in the colony late in January 1946 and was first put into operation in the Accra roadstead.

Although 1946 turned out to be a bad year for fishing all along the Gold Coast, the catch of the new boat was encouraging. Accra was selected as a base for the craft not only because the experimental canning plant (opened in September, 1946) was located at Osu, a suburb of Accra, but also because it was thought that fish were more plentiful in the waters around Accra than elsewhere.

After a few months operation from the poorly-protected Accra roadstead, the boat had to be moved to Sekondi, where the surf is not so strong and where sheltered anchorage is available. The vessel actually was capsized at its moorings in the Accra harbor during a night wind storm and suffered some water damage. Since more fish are now taken off the coast between Nungwa (15 miles east of Accra) and Winneba (30 miles west), it is regretted by the Fisheries Department that the high surf and lack of a sheltered mooring prevent the boat from continuing to work these waters. The explanation of the relatively heavy catch between Nungwa and Winneba is not known definitely, but it is thought that more fish rather than superior techniques or more intensive fishing is the answer. The proximity of the edge of the continental shelf to shore around Accra makes it easier for the native canoes to reach deep water there than further to the west, and this fact may partially account for the large catch.

The experimental factory which was opened at Osu during September, 1946, is now being supplied only by the five native crews who have been operating government-owned canoes on a share basis since 1942. (See this Consulate's report No. 31 of October 26, 1944, for a resume of the early work on the fisheries project up to the end of 1943). The canning process and formulae have been sufficiently worked out there on a laboratory scale to permit the construction of a larger pilot factory at Sekondi to handle the catch of the power boat.

*Prepared by Robert B. Houston, Jr., American Vice Consul, American Consulate, Accra, Gold Coast, April 17, 1947. (Report No. 12).

The Sekondi plant is to be capable of turning out a ton of canned fish daily when completed. Due, however, to the large seasonal variation in the amount of fish caught, the factory will be able to operate at capacity for only four months of the year (June, July, August and September) and is not expected to exceed an average output of 500 pounds per working day throughout the entire year. No satisfactory way has yet been found to store fish during the peak period for subsequent canning during the off months.

Mechanization of the plant will be kept to a minimum consistent with capacity operation since it is desired to give employment to as many workers as possible, and since maintenance of complicated machines is difficult if not impossible without European technicians. Only three machines with moving parts are to be used, none of which is automatic. The machines are simple and can all be belt-driven from a single one horsepower electric motor. The work will be moved by hand from one operation to another since conveyor belts are considered an unnecessary complication.

The canning process to be used at Sekondi has been tested over a six months' period at the Osu experiment station and in brief is as follows:

The containers (enamelled rather than tin-coated due to the shortage of tin) are imported from the United Kingdom in three pieces-- top, bottom and side, the side being pressed flat to save shipping space. Upon arrival, the side is rolled to a cylindrical form on one machine, and flanged top and bottom on another. A third operation presses the bottom piece into the flange, folds over and crimps the lip, producing a hermetic seal. The fish, seasoning, and sauce, if any, are then put into the can and the whole heated at 100° C. to vaporize the water and expel the air from the container. After a few minutes, the can is removed from the heater, taken to the folding and crimping machine and the top put on. The filled, evacuated and sealed can is next placed in an oven operating at 115° C. for the final sterilizing operation. Before a batch of cans is released, random samples are heated for two weeks to test for possible bacteria. No attempt has yet been made to utilize the waste at the Osu station.

Only one size container has been used -- a 1A can holding 16 ozs by weight. Two different packs have been put out: plain, wholeselling at 10s. per dozen tins; and one with tomato sauce added, at 11s. per dozen. This compares favorably with the retail price of imported fish (Alaskan salmon-1/7d per lb, Canadian sardines-3½oz for 8d, Canadian herrings-1/1½d per 14 oz), but no accurate cost comparisons can be made until the local factory begins to operate on a commercial basis.

At the present time, only two species are being put up; sardinella camoronensis, a South Atlantic fish; and sardinella aurita, a Mediterranean type. Both are called "herring" locally; the two make up about 60% of an average year's catch and perhaps as much as 80% in especially good years. The caranx carangus, called afafa locally, is caught in large numbers off the mouth of the Volta, which river is supposed to be the spawning ground of this type of fish. The afafa is not considered tasty by Europeans and partly for this reason has not been canned as yet. The thunnus thynnus, called tunny locally, tuna in the United States, is thought to abound in the coastal waters of over 100 fathoms depth. The hundred fathom line lies about 60 miles off shore at Sekondi and 10 miles off shore around the mouth of the Volta. Since the usual range of a native canoe carrying heavy nets is 15 miles, thunnus thynnus is caught only on lines. This fish is quite tasty and will be canned if caught in sufficient quantity. The total annual catch of all species has been estimated at 23,000 tons landed weight

in an average year, with a maximum of 36,000 tons in the best years.

The following are some of the more important species found off the Gold Coast (systematic names according to Irvine):

1.	Herring	sardinella camoronensis
2.	Herring	sardinella aurita
3.	Afafa	caranx carangus
4.	Tunny	thunnus thynnus
5.	Bonito	sarda sarda
6.	Mackerel	cybium trifor
7.	Mackerel	scomber colias
8.	Sea Bream	dentex macrophalmus
9.	Sea Bream	pagellus crythrinus
10.	Sea Bream	pagus chrembergi
11.	Ribon fish	trichiurus leptorus
12.	Burro	otoperca aurita
13.	Barracouta	sphyraena guachancho
14.	Blue shark	scoliodon sp.
15.	Hammerhead shark	sphyrna zygaena
16.	Sail-fish	istiophorus sp.
17.	Drum	otolithus macrognathus
18.	Threadfin	galeoides polydactylus
19.	Sole	cynaglossus goreonensis
20.	Catfish	arius latiscutatis
21.	Shad	ethmalosa dorsatis
22.	Sting ray	dasybatus margarita
23.	Guitar fish	rhinobatus sp.
24.	Long-finned herring	ilisha melanota.

A number of other edible fish are caught as well as eels, turtles, crawfish, crabs and shrimps, but the landings of herrings and afafa far exceed in weight and value those of other species.

The information available on marine life and physical conditions off the Gold Coast is at best rudimentary. In January and February, 1946, a Danish sailing vessel coasted the colony taking numerous marine samples and measurements, but no report has yet been made of the findings. One surprising fact which has been revealed by the daily sea measurements of the Fisheries Department is that the variation in water temperature off shore is much greater than in most other coastal waters. On September 23, 1946, the sea temperature was measured as 19.5°; by November 12th, it had reached a maximum of 29° C. This great temperature change just preceeds the reversal of the current during the harmattan season (December and January), when the flow changes from 1/2 knot easterly to 1/4 knot westerly.

A marine life expert has recently been attached to the Office of the West African Council to advise on fishery development in the four British West African colonies. Fishery headquarters probably will be located in Freetown, Sierra Leone, with branch offices in the other three colonies.

It has long been realized that no great improvement can be made in the fishing industry without the introduction and general use of fishing craft capable of going farther out into the sea and remaining out longer than the native canoe. Because of the paucity of protected anchorages along the coast, it is

unlikely that large power boats could be accommodated except in a few places even if the natives had the capital to invest in them. It seems, therefore, that the traditional canoe and woman fish peddler are not likely to be supplanted for some time.

The present shortage of rope and nets, with consequent high prices, is imposing a burden on the fishing community which can not be relieved to any great extent by local action. In 1928, the Department of Agriculture imported a number of sisal plants from old German plantations in Togoland and started a nursery on the coast just west of Accra. At the time it was hoped that sisal could be established in the Accra plains both as an export crop and also as a source of fiber for the local Hausa rope-makers. Cultivation however was stopped a few years later because of the unfortunate experiences of the East African plantations during the depression. The sisal continued to grow despite the discontinuance of cultivation and the Prisons Department was able to obtain fiber for rope making by convicts as late as 1940. In 1943, the area originally planted in sisal was cleared to make way for a fighter plane landing strip, which in the end was never completed. Thus the basis for a small rope-making industry was destroyed to the present disadvantage of the local fishermen.

Imports of fish into the colony dropped to a record low in 1946, when only 14,163 cwt (112 lbs.) of fish were brought in as compared with 120,123 cwt in 1938. Tables 1-1V appended to the report show how fish imports have declined during the past ten years. It will be seen from Table 1V that during the war French Togoland became the major source of Gold Coast fish imports, it is interesting to note in this connection that the price of dried fish from Togoland has remained under 3¢ a pound since 1936, despite the sizable rise in world fish prices.

TABLE 1

IMPORTS OF PRESERVED FISH OF ALL KINDS
FROM 1932 to 1946

Calander Year	Total Imports
	Amounts given in cwt (112 lbs)
1932	67,125
1933	68,466
1934	69,463
1935	80,624
1936	117,103
1937	151,716
1938	120,123
1939	107,880
1940	43,967
1941	16,051
1942	32,927
1943	20,002
1944	19,987
1945	22,274
1946	14,163

TABLE II

AVERAGE PRICE OF IMPORTED FISH

(1930 = 100)

Year	Canned Fish	Dried Fish
1931	99	94
1932	104	86
1933	94	67
1934	97	65
1935	94	70
1936	87	73
1937	89	82
1938	86	86
1939	78	90
1940	104	101
1941	195	113
1942	189	204
1943	59*	197
1944	84*	261
1945	272	284

*Figure low due to bulk purchase of low grade herring from Canada.

TABLE IV

IMPORTS OF DRIED FISH FROM EACH COUNTRY

Year	Weight	Value	Percentage weight from each country					
			French Togo	French Ivory Coast	Mauretania	Canary Islands	Newfoundland	Others
1936	61,910	88,909	5.8	4.9	8.7	73.0	negligible	7.6
1937	59,262	86,332	*	*	*	*	*	*
1938	52,361	75,746	17.0	12.0	8.8	53.0	negligible	9.2
1939	42,044	55,822	36.0	3.0	10.7	30.0	"	20.3
1940	23,396	30,513	51.0	2.1	12.0	18.0	"	16.9
1941	9,373	9,373	80.0	1.0	negligible	negligible	"	19.0
1942	10,502	15,787	76.0	1.6	"	"	20.0	2.4
1943	7,872	19,366	42.0	4.0	36.0	"	17.0	1.0
1944	8,799	13,013	86.0	13.0	negligible	"	negligible	1.0
1945	14,206	32,631	68.0	15.0	"	1.2	14.0	1.8

* Unavailable

TABLE III

IMPORTS OF CANNED FISH BY COUNTRY OF ORIGIN

Year	Total weight CWT	Value BWA £	Percentage of total for each country				
			USA	Canada	Portugal	Japan	Others
1936	55,193	118,068	64.0	4.5	21.0	8.6	1.9
1937	92,454	203,444	*	*	*	*	*
1938	67,762	143,541	27.0	1.3	11.0	59.0	1.7
1939	65,836	126,529	4.5	Negligible	12.0	80.0	3.5
1940	20,571	52,701	6.7	"	13.0	79.0	1.3
1941	6,678	31,966	84.0	"	7.5	Negligible	8.5
1942	22,425	104,310	94.0	"	Negligible	"	6.0
1943**	12,130	17,479	0.1	96.0	Nil	Nil	3.9
1944**	11,188	23,111	2.0	97.0	1.0	Nil	0.0
1945	8,068	54,045	20.0	79.0	Nil	Nil	1.0

* unavailable

** large bulk purchase of low grade herring from Canada.